National Institute of Environmental Health Sciences

Using remote sensing to assess potential impacts of hurricanes on mosquito habitat formation: Investigating the mechanisms for interrelationship between climate and the incidence of vector-borne diseases

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Abstract:

The present study examined the relationship between climate and the incidence of vector-borne disease. The climatological phenomenon El Niño Southern Oscillation (ENSO) was found to be significant in predicting the frequency and intensity of hurricane seasons for the Atlantic Ocean and the Yucatan Peninsula between 1985 to 2007. Satellite analysis for hurricanes that impacted the Yucatan Peninsula, specifically the country of Belize, between 1995 and 2007 determined changes in the Normalized Difference Vegetation Index (NDVI), mid-infrared range (MIR), and thermal infrared range (TIR) immediately after and one month after the hurricanes. Regression analyses found that correlations between reported cases of malaria and dengue fever for Belize and changes in the NDVI, MIR, and TIR existed between immediate and persistent impacts and disease incidence.

Source: http://hdl.handle.net/2104/5530

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Extreme Weather Event

Extreme Weather Event: Hurricanes/Cyclones

Geographic Feature: ☑

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Non-U.S. North America

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: General Vectorborne, Mosquito-borne Disease

Mosquito-borne Disease: Dengue, Malaria

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content